DETAILED ACTION

1. This office action is in response to application 10/559853 filed December 7th 2005. Claims 1-25, 27-43 and 45-47 are pending and have been examined.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 3/24/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4, 7, 12, 15, 16, 17, 18, 20, 22, 24, 27, 34, 41, 43, and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Wen (2003/0193565).

Apropos claim 1, Wen teaches:

(Original) A device for measuring tone reproduction characteristics (Title), which indicate a relationship between input signal tone values and actual display luminance of a color monitor (100) having a function of displaying color images using three primary colors of R, G, and B, the tone reproduction characteristics measuring device for color monitor comprising:

tone value designating means (210), designating a combination of tone values of the three primary colors, R, G, and B, for displaying an even pattern of uniform brightness and color in a first attribute region (50) (URL 3, Fig. 2a);

reference pattern generating means (220) generating a reference pattern in which first sub-regions (61) and second sub-regions (62) are mixed at a prescribed area ratio inside a second attribute region (60) (NULR shown in Fig. 1, mix of two sub-regions white and black),

wherein each of the three primary colors, R, G, and B take on a minimum tone value in said first sub-regions and each of the three primary colors, R, G, and B take on a maximum tone value in said second sub-regions (Fig. 1 mix of two sub-regions white and black);

pattern display means (230) defining a test pattern which is arranged from said first' attribute region and said second attribute region being positioned so as to contact

each other on a screen of the color monitor, and providing prescribed signals to the color monitor so that an even pattern, based on the combination of tone values designated by said tone value designating means, is displayed in said first attribute region, and said reference pattern, generated by said reference pattern generating means, is displayed in said second attribute region ([0025], Fig. 2a and 2b show examples of ULR and NULR overlapping);

tone value varying means (240) varying respective tone values designated by said tone value designating means so as to vary a brightness and a color of the even pattern ([0026], adjusting input voltage of ULR to match ULR and NULR);

coincidence signal input means (250) inputting, while a varying operation by said tone value varying means is being performed, a coincidence signal indicating a recognition that said first attribute region and said second attribute region are matched in both brightness and color, from an operator who views said test pattern displayed on the screen of the color monitor ([0032]); and

characteristics computing means (260) recognizing a combination of tone values designated by said tone value designating means at a point when said coincidence signal is input, as corresponding tone values of the respective primary colors that correspond to a prescribed reference luminance in accordance with said prescribed area ratio, and determining, by computation, tone reproduction characteristics of the respective primary colors based on said reference luminance and said corresponding tone values that correspond to each other (computes tone characteristics after user indicates luminance matches [0034]).

Apropos claim 2, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 1, wherein:

the tone value varying means (240) has a function of performing two types of varying operations of a brightness varying operation, with which the tone values are varied so that mainly a brightness of the even pattern changes (adjusting voltage of ULR [0026]), and a color varying operation, with which a tone value is varied so that mainly a color of the even pattern changes (measuring white point by changing chromaticity coordinates [0041] and [0048]).

Apropos claim 4, Wen teaches:

The tone reproduction characteristics measuring device for 3 color monitor according to Claim 1 wherein:

the tone value varying means (240) performs variations of the tone values based on operation inputs by the operator (Fig. 7a shows buttons 24 for user to modify the tone).

Apropos claim 7, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 1 wherein:

the tone value varying means (240) varies the tone values with time in accordance with prescribed rules that have been established in advance ([0026] and [0039]).

Apropos claim 12, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 1 wherein:

the reference pattern generating means (220) has a function of setting a plurality N of area ratios of the first sub-regions to the second sub-regions and generating N reference patterns that differ mutually in reference luminance, and the characteristics computing means (260) has a function of determining the tone reproduction characteristics for the respective primary colors based on N Corresponding tone values obtained for N test patterns using the N reference patterns ([0038]).

Apropos claim 15, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 1, wherein:

the reference pattern generating means (220) forms the first sub-regions and the second sub-regions from unit cells having the same shape and size and forms the reference pattern from a two-dimensional array of these unit cells (NULR of regions 1 and 2, Fig. 1).

Apropos claim 16, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 15, wherein:

the reference pattern is formed by arraying rectangular unit cells in a two-dimensional array, and for arbitrary odd numbers i and j, a cell group, formed of four unit cells of a unit cell of an i-th row and a j-th column, a unit cell of the i-th row and a (j+1)th column, a unit cell of an (i+1)-th row and the j-th column, and a unit cell of the (i+1)-th row and the (j+ 1)-th column, is defined, and a common positioning pattern of the first sub-regions and the second sub-regions is applied for all cell groups (See Fig. 1, four cell pattern of 1 and 2 are repeated throughout NULR).

Apropos claim 17, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 16, wherein:

among the four unit cells which make up a cell group, first sub-regions are 8 formed by a pair of unit cells adjacent diagonally and second sub-regions are formed by a remaining pair of unit cells so as to constitute a reference pattern with an area ratio of 1:1 (See Fig. 1, diagonal line of white cells, with black cells being in a 1:1 correspondence).

Apropos claim 18, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 16, wherein: among the four unit cells which make up a cell group, one unit cell constitutes one sub-region and remaining three unit cells constitute the other sub-region so as to constitute a reference pattern with an area ratio of 3:1 or 1:3 (RvN1/N1+N0, so different ratios can be achieved, [0025]).

Apropos claim 20, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 1 wherein:

one attribute region that makes up the test pattern is made of a plurality of regions positioned in a dispersed manner and the other attribute region is made of a background portion thereof (Fig. 2 shows a NULR region and a ULR region make up a test pattern).

Apropos claim 22, Wen teaches:

The tone reproduction characteristics measuring device for 9 color monitor according to Claim 20, wherein:

a plurality of regions of the same attribute that are the same in shape and size are positioned dispersedly in a two-dimensional plane at a prescribed pitch so that a prescribed spatial frequency is obtained (See Fig. 1).

Apropos claim 24, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 22 , wherein:

regions of the same attribute are positioned dispersedly at a prescribed pitch by which a spatial frequency that exhibits good sensitivity in regard to both brightness difference discrimination characteristics and color difference discrimination characteristics for the operator viewing the test pattern is obtained (See Fig. 1).

Apropos claim 27, Wen teaches:

A device for measuring tone reproduction characteristics, which indicate a relationship between input signal tone values and actual display luminance of a color monitor (100) having a function of displaying color images using three primary colors of R, G, and B, the tone reproduction characteristics measuring device for color monitor comprising:

tone reproduction characteristics storage means (410) storing provisional tone reproduction characteristics (106, Fig. 9);

image data storage means (420) storing image data of a sample image to be used in measurement (106, Fig. 9);

image display means (430) which assumes that the tone reproduction characteristics of the color monitor are to be the provisional tone reproduction characteristics stored in the tone reproduction characteristics storage means, performs prescribed tone corrections on image data stored in the image data storage means so

that the sample image will be displayed with correct tone reproduction on the color monitor, and provides corrected image data to the color monitor ([0029] through [0035]);

a physical output medium (520) obtained by outputting the sample image on a physical medium based on the image data stored in the image data storage means (Display 100, Fig. 9);

characteristics modifying means (440) receiving instruction inputs, for making a sample image (510) displayed on a screen (500) of the color monitor, and a sample image (530) displayed on the physical output medium (520), close in brightness and color, from an operator who visually compares the two images ([0029 through [0035]);

coincidence signal input means (450) inputting a coincidence signal, indicating a recognition that both of the images are matched both in brightness and color, from the operator (110, Fig. 9); and

characteristics output means (460) outputting the provisional tone reproduction characteristics, stored in the tone reproduction characteristics storage means when the coincidence signal is input, as a formal tone reproduction characteristics of the color monitor ([0029] though [0035]).

Apropos claim 34, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 27, wherein:

the characteristics modifying means (440) performs processes of varying the tone reproduction characteristics with time in accordance with prescribed rules ([0026]

and [0039]) that have been established in advance and performs modifications wherein provisional tone reproduction characteristics when an instruction input from the operator is provided are deemed to be new provisional tone reproduction characteristics ([0032] through [0034]).

Apropos claim 41, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim27 wherein:

the characteristics modifying means (440) has a function of performing two types of modifying operations of a brightness modifying operation of modifying the tone reproduction characteristics based on an instruction input for mainly changing the brightness (adjusting voltage of ULR [0026]) of the sample image displayed on a screen of the color monitor, and a color modifying operation of modifying the tone reproduction characteristics based on an instruction input for mainly changing the color (measuring white point by changing chromaticity coordinates [0041] and [0048]).

Apropos claim 43, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 27, wherein:

an image, which can be recognized as a substantially achromatic image when viewed by the operator, is used as the sample image (See black and white image in Fig. 1).

Apropos claim 45, Wen teaches:

A device for measuring tone reproduction characteristics, which indicate a relationship between input signal tone values and actual display luminance of a color monitor having a function of displaying color images using three primary colors of R, G, and B, the tone reproduction characteristics measuring device for color monitor comprising:

means for determining a correspondence between luminance and tone value by visual recognition ([0032]);

means for determining a combination of tone values of the three primary colors that appears to be achromatic ([0041]); and

characteristics computing means determining, by computation, the tone reproduction characteristics for the respective primary colors from the correspondence between luminance and tone value and a combination of the three primary colors ([0034]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 3, 5, 6, 11, 13, 42, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wen in view of Sharp (JP 2002-55668).

Apropos claim 3, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 2, wherein:

the brightness varying operation is performed by a task of increasing or decreasing all of respective tone values of the three primary colors, R, G, and B by a common variation amount ([0026]), and

However Wen fails to explicitly teach:

the color varying operation is performed by a task of increasing or decreasing a tone value of a single specific color among the three primary colors, R, G, and B.

In the same field of correcting tonal characteristics of displays, Sharp teaches adjusting the chromaticity of the display by interlocking red and green and adjusting blue in order to correct luminance ([0035].

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the known method of adjusting only a single primary color as taught by Sharp in the known device of Wen on order to achieve the predictable results of correcting the luminance of the display.

Apropos claim 5, Wen fails to explicitly teach:

The tone reproduction characteristics measuring device for color monitor according to Claim 4, wherein:

the tone value varying means uses a first button (31) that provides an instruction of making the even pattern brighter, a second button (32) that provides an instruction of making the even pattern darker, a third button (33) that provides an instruction of strengthening a component of a specific color of the even pattern, and a fourth button (34) that provides an instruction of weakening a component of the specific color of the even pattern, and performs a varying operation of adding a common variation amount to all of the respective tone values of the three primary colors, R, G, and B, when there is an operation input in regard to the first button, performs a varying operation of subtracting a common variation amount from all of the respective tone values of the three primary colors, R, G, and B, when there is an operation input in regard to the second button, performs a varying operation of adding a prescribed variation amount to a tone value of the specific color when there is an operation input in regard to the third button, and performs a varying operation of subtracting a prescribed variation amount

from a tone value of the specific color when there is an operation input in regard to the fourth button.

In the same field of correcting tonal characteristics of displays, Sharp teaches adjusting the chromaticity of the display by interlocking red and green and adjusting blue in order to correct luminance ([0035]. Sharp's method of adjusting the display also includes four buttons, as seen in Drawing 2 which allows the user to step through the luminance and color the different areas of the display pattern in order to achieve the correct luminance.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the known method of adjusting only a single primary color as taught by Sharp in the known device of Wen on order to achieve the predictable results of correcting the luminance of the display.

Apropos claim 6, Sharp further teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 5, wherein:

a two-dimensional XY coordinate system is defined and the respective buttons are positioned so that the first button (31) and the second button (32) are positioned at opposing positions along an X-axis (Buttons at lower portion of screen in drawing 2) that sandwich an origin and the third button (33) and the fourth button (34) are positioned at opposing position along a Y-axis (Buttons at right hand portion of screen in drawing 2) that sandwich the origin.

Apropos claim 11, Sharp further teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 3 wherein:

of the three primary colors, R, G, and B, the primary color B is deemed to be the specific color and tone reproduction characteristics for the primary color B and tone reproduction characteristics in common to the primary colors R and G are determined ([0035]).

Apropos claim 13, Sharp further teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 12, wherein:

the characteristics computing means defines a two-dimensional coordinate system in which a first coordinate axis is set for tone value and a second coordinate axis is set for luminance (Drawing 5), plots N points having respective luminance values and corresponding tone values as coordinate values on the coordinate system, plots a point having a minimum luminance value and a minimum tone value as coordinate values, and a point having a maximum luminance value and a maximum tone value as coordinate values, and determines a curve passing through the total of (N + 2) plotted points in a form of a graph that indicates the tone reproduction characteristics (graph on tonal characteristics passes through points indicated by dots in drawing 5).

Apropos claim 42, Wen teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 41, wherein:

the tone reproduction characteristics storage means (410) stores curves, respectively indicating relationships between tone value and luminance for the three primary colors, R, G, and B, in a form of graphs indicating the tone reproduction characteristics ([0042]), and

the characteristics modifying means (440), performs modification on all of the respective curves of the three primary colors R, G, and B in performing the brightness modifying operation ([0026]), and

However Wen fails to explicitly teach:

performs modification on only a curve of a color to be modified in performing the color modifying operation.

In the same field of correcting tonal characteristics of displays, Sharp teaches adjusting the chromaticity of the display by interlocking red and green and adjusting blue in order to correct luminance ([0035]. Sharp's method of adjusting the display also includes four buttons, as seen in Drawing 2 which allows the user to step through the luminance and color the different areas of the display pattern in order to achieve the correct luminance.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the known method of adjusting only a single primary color as taught by Sharp in the known device of Wen on order to achieve the predictable results of correcting the luminance of the display.

Apropos claims 46, Wen further teaches:

The tone reproduction characteristics measuring device for color monitor according to Claim 5 wherein:

of the three primary colors, R, G, and B, the primary color B is deemed to be the specific color and tone reproduction characteristics for the primary color B and tone reproduction characteristics in common to the primary colors R and G are determined ([0024]).

Allowable Subject Matter

Claims 8-10, 14, 19, 21, 23, 25, 28-33, 35-40 and 47 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RANDAL WILLIS whose telephone number is (571)270-

1461. The examiner can normally be reached on Monday to Thursday, 8am to 5pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RLW

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